AN OVERVIEW OF THE PROJECT EVALUATION CONCEPT: THE PROCESS OF THE DEVELOPMENT BANK OF TURKEY

A THESIS
SUBMITTED TO THE DEPARTMENT OF MANAGEMENT
AND THE INSTITUTE OF BUSINESS ADMINISTRATION
OF BILKENT UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION

By
TANER SAN
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I certify that I have read this thesis and in my opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Business Administration.

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ABSTRACT

The purpose of this thesis study is to analyze project evaluation concept in detail and to give an example of a project appraisal process from Turkey. The process adopted by the Development Bank of Turkey, which is one of the few project formulators and evaluators in Turkey, is selected to analyze and to crtisize for this study. A financial evaluation of Refined Cotton Oil Plant Project within the South Anatolia Project is also demostrated according to principals of project appraisal report format of the bank.

ÖZET

Bu tez çalışmasının amacı, proje değerlendirme kavramını detaylı olarak incelemek ve Türkiye'de uygulanan proje değerlendirme sürecini bir örnek çalışma ile ortaya koymaktır. Türkiye'de proje değerlendirme işlevi olan nadir kuruluşlardan, Türkiye Kalkınma Bankası proje değerlendirme süreci analiz ve eleştiri için seçilmiştir. Bu çalışmada GAP projesi içinde uygulanması düşünülen Rafine Pamuk Yağı Projesi'nin finansal değerlendirmesi Türkiye Kalkınma Bankası proje değerlendirme esaslarına göre gerçekleştirilmiştir.

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1. INTRODUCTION

In developing countries financial resources for investment is very limited, therefore optimum allocation of funds to right investments is crucial for the future of the country. The best investment alternative should be found for the development of country. Each project should be analyzed and evaluated before implementation. By using project evaluation techniques, benefits and costs should be compared being aware of the risks in the environment.

Project evaluation processes in development banks serve as decision modules for chosing best investment alternative which suits the goals of national planning. From this point of view, development banks carry the responsibility of efficient and effective use of resources. Therefore the project evaluation methods in these banks should be designed to make the best decision.

For these reasons, in this study, project appraisal concept in general and project appraisal process in the Development Bank of Turkey are presented.

In the presentation, project appraisal concept and its importance will be stressed. The project appraisal process of Development Bank of Turkey will be introduced and this process will be discussed. The results of finacial evaluation demostration are put forward.

2. PROJECT APPRAISAL CONCEPT AND ITS RELATIONSHIP WITH NATIONAL PLANNING

In this chapter definition of project and project appraisal are given and reasons for project evaluation and relationship with national planning are presented.

2.1. PROJECT DEFINITION

A project is an investment proposal which defines how and where the limited resources might be used to serve a new market profitably, to introduce a newly invented technology or to satisfy a social need (1).

A project aims to reserve some of the resources to create benefits in future. In other words it is a study of directing limited resources to the most profitable and/or beneficial investment ideas.

According to another approach " a project is the use of national values to produce value" (2).

Investment project, which is a very important tool for economic and social development, has a broader definition. All prior studies to supply products or services to satisfy certain segment of the existing or future demand by applying technology on raw materials, capital stocks and manpower with minimum cost for the benefit of entrepreneur and/or society are called "investment project studies". An investment project is the formulation of these studies to be the best alternative (1).

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1. Kargul, Dogan,"Yatirim Projelerinde Kullanilan Temel Teknikler", Dunya, Nov. 12 1989, p 4.
2. Packard, C. Philp,"Project Appraisal For Development Administration", Publications of Institute of Social Studies, Paris, 1974, p.17.

2.2. PROJECT APPRAISAL

The managers of a business must recognize that generating investment projects is an essential tool for success. A management team must not neglect the responsibility to develop tomorrow's business, therefore all available resources of the company must be allocated to the task. For this reason, searching for new profitable investment ideas should be a part of management functions. This is also a study to create continuous wealth which is the main objective of business. After all, project evaluation becomes crucial as selecting best alternative is vital for the future of a company. On the other hand, none of the sophisticated evaluation processes is useful for a company unless there is a set of projects which are based on detailed experience of the markets and technology involved. Original and profitable investment ideas can be generated by a creative team in a company (3).

2.2.1. STAGES OF PROJECT APPRAISAL

Projects should be evaluated under solid methodologies in which the projects are analyzed and appraised in detail, from various points of views compared to a set of evaluative criteria.

King (1975) has proposed six-stage process for project appraisal.

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3. King, P.,"Is the Emphasis of Capital Budgeting Theory Misplaced?". Journal of Business Finance and Accounting.1975, Vol 12, No 1, pp 68-82.

1 Search: Investment project begins with finding out opportunity in a market or for serving a social need. The creative team of the company has to find projects that are profitable and/or socialy beneficial, and has good fits with the talents and resources of the business.

2. Screening: At this stage feasibility of the project is reviewed. The strategic fit of the project to the organization may be considered in this stage as well.

3. Definition: A detailed description of the project has to be given. The project subject is identified in this stage. Cost and revenues, inputs and output of the project are part of this process.

King (1975) inserts technical and economic analysis of the project into this stage. The research of suitable personnel, office/factory space to be found, technology to be used, market to be served and all other investigations are the part of definition.

4. Evaluation: There are various types of techniques and methodologies for this purpose. The objective of the project evaluation is to put forward a full package of information about the project, both numerical and descriptive that will assist the final decision (4). Evaluation rarely ends with a single number.

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4. Hirst, R.C. Ian, "Business Investment Decisions", Philip Allan Publisher Lmt., London, 1988, pp. 4-5.

5. Decision: The package of information produced at the evaluation stage and strategic considerations are used in making final decision. Decision is given among a set of alternatives.

6. Post Acceptance Analysis: This analysis is essential for learning from experience. Lessons can be learned about bias; over-optimism in forecasting benefits and underestimating costs. These lessons are useful if they can be fed back into the appraisal system. The real performance is compared with the projected technical, economical and financial performance to find out major error sources in estimations to guide necessary rearrangements in the system.

Though King (1975) has proposed analysis to be part of definition stage, in many applications analysis is an independent stage of the project appraisal where all available information is exhibited.

2.2.2. PROJECT EVALUATION CONCEPT

In this study, the emphasis is on evaluation stage. Evaluation is the process of examining and judging the worth, quality, significance, amounts, degree or condition of something.
In general, project evaluation concept can be explained as a process for determining and comparing costs and benefits of an investment (5). During this process the priority of the project

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5. Kargul

investment. During this process the priority of the project against other investment opportunities and probable costs and benefits in case of alternative use of allocated resources in other projects are determined and evaluated.

Another description says " Project evaluation is search of whether a project is consistent and valid according to technical, economic and financial aspects" (6). The main point of the process is to answer the question " is the project right alternative to allocate the resources ? "

2.2.3. REASONS FOR PROJECT EVALUATION

Within the content of these general definitions, there may be several reasons for project evaluation;

* There may be need to judge the importance of a foreseen project to those for whom the project is intended.

* There may be also need for estimating the cost and/or eventual success of a project in relation to the cost of alternative projects.

* Even when the project is under implementation or experimentation, there may be need for assessing the successful

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6. Kargül

implementation of various components of the project.

* After the project is put into operation there may be need to appraise the degree of success, viewing it in relation to the initial goals of the project; this is in fact within the content of King's sixth stage, post acceptance analysis. This topic will be emphasized in the following pages.

* In addition to all these factors, there may also be a need to find out the relevance of the project as well as any side-effects which the project might have caused.

Evaluation is one of the basic components of classical deciding module (Fig 3.1.). Deciding module is formed by objectives, analysis, evaluative criteria and evaluation.

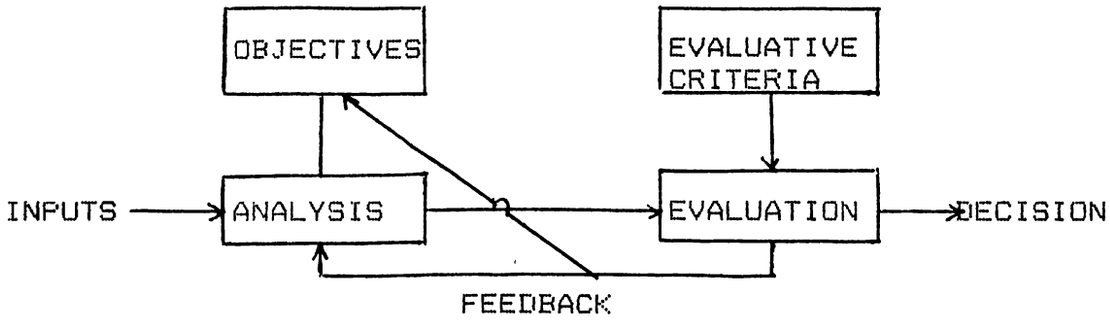

Fig 3.1. Deciding Module
Source:
Soumelis, Constantin G., Project Evaluation Methodologies and Techniques , Paris, United Nations Educational, Scientific and Cultural Organization, 1977, p. 18

There is a straight analogy between a project evaluation process and classical deciding module. As mentioned earlier, goal of a

project is either to serve a market profitably or to provide a social benefit, or both. There are two types of goals by definition; quantitative and qualitative goals. Quantitative goals are usually planned before, and there is no associated problem in interpreting the goals as they are usually stated numerically. On the other hand, qualitative goals are associated with the nature of the output and usually much less precise than quantitative goals. They reflect purpose of the project and are subject to various interpretations as they are viewed by various evaluators at particular time period.

Evaluative criteria are set according to the objectives. They bring limits which the project has to perform within these borders i.e. shortages should be avoided in work flow (a technical criterion), the product should capture a certain market share (an economic criterion), future cash flows should have positive net present value (a financial criterion), the project should create a number of employment per unit capital (a social criterion). Certainly there are various types of criteria used in project appraisals, these examples are given to express evaluative criteria notion.

Though it is not present in Fig 3.1., there is always a link between analysis and evaluative criteria. Analysis stage is built so that it can produce data for evaluation stage to compare the results with evaluative criteria.

Analysis within project appraisal consists of three parts; technical, economic and financial. Technical and economic parts are independent, whereas financial analysis is performed according to the data processed in technical and economic parts.

Feedbacks to objectives and analysis parts may cause readjustments of the system's internal arrangements implied in its original goals so that the firm could change goals or set new ones.

Inputs to project evaluation process are generally technology, innovation, resources available and kind of the product or service (7).

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7. Soumelis, Constantin G.,"Project Evaluation Methodologies and Techniques", Paris, United Nations Educational, Scientific and Cultural Organization, 1977, p. 18

2.3. WHO EVALUATES THE PROJECTS ?

In literature two types of evaluator can be observed; insiders and outsiders. Social researchers, consulting and financial firms are usually accepted as outsiders and project managers of the firms are called insiders. In case of both type of evaluation, there are pros and cons according to specific situations.

An inside evaluator has detailed information about the project that will be implemented by the firm, but inside evaluation reveals the psychological factors involved in the project evaluation. The project manager will be willing to defend his/her project against the projects of other departments because of internal competition within the company. The policy makers of the firm will prefer outsiders to ensure the objectivity of evaluation, while lower level project manager will insist on inside evaluation to control the results of evaluation.

Outsiders will have their own goals, therefore the methodologies used will serve their goals rather than the evaluation of the benefits of the project for the company. As an example a financial firm will evaluate the project giving major importance on ability to pay its debts. In addition, outsiders will perceive the project in a different way, and it will take time to understand goals. On the other hand an experienced outside evaluator in the field of project will not only shorten time but also guarantee the success

of the evaluation process (8).

Another approach is to establish evaluation units within the company which will work independently from action units, but because of the cost factor, action units are usually used as evaluation units.

There is not a unique answer to the question of " who evaluates the projects?". The decision must be given according to the kind and importance of the project. In case of routine matters, there is a general tendency to use insiders.

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8. Soumelis (1977), pp. 25

2.4. RELATIONSHIP BETWEEN PROJECT APPRAISAL AND NATIONAL PLANNING OF SOCIETY

A private commercial entrepreneur selects the project which satisfies his objectives best. For a national planner this process is rather complex. The choice must be subject to a set of general objectives of national policy and have consequences for employment, output, consumption, savings, foreign exchange earning, income distribution and other things relevant to national parameters. For example, when a soap manufacturer sets a price, he only thinks about his commercial benefits, on the other hand a national planner has to consider the relation between price and the soap usage habits of society (9). These objectives may severely conflict with each other, since nation is a collection of different interests.

Projects in the concern of national planning are analyzed under social benefit-cost approach by the national planners. The social benefit-cost approach must cope with multiple objectives. This approach is aimed at systematizing the complex problems of project planning from the point of view of the society.

Institutional framework (Fig 5.1.) of project selection in macro phase is rather complex. The policy makers of the country select project subjects according to economic conjoncture of the world and the country. In this framework central planning offices (CPO,

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9. UNIDO,"Guidlines for Project Evaluation", United Nations Publications, Austria, 1972, p.12.

State Planning Office in Turkey) has a significant role in implementation of the policy. CPO determines range value parameters (like social rate of discount, regional distribution weights through incentives) and factual parameters (like governments' propensity to reinvest and marginal propensity to invest in private sector). These parameters are guides to project formulators in their analysis and decision criteria for project evaluators. The projects chosen by formulators and evaluators are re-evaluated by CPO under various ranges of national parameters. Optimal projects are chosen and presented to policy makers.

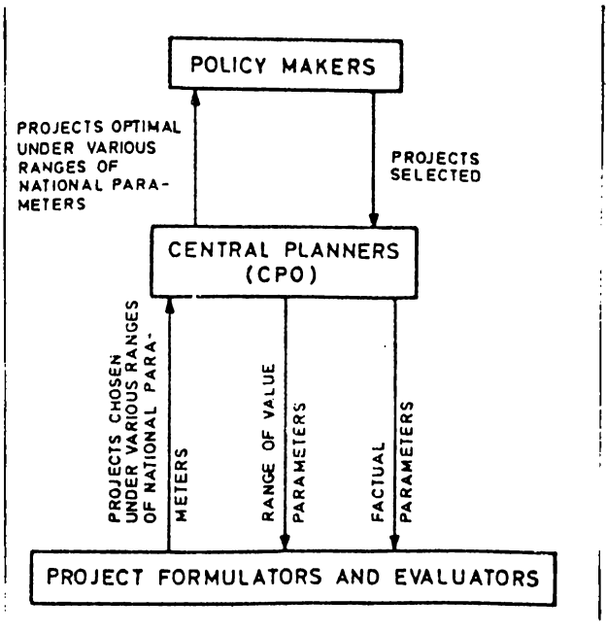

Fig. 5.1. Institutional Framework
Source:
UNIDO (1972), p. 17.

In this frame, social benefit-cost analysis is the most important part of project appraisal. Social benefit is measured as value added to the national economy. Value added of a project is the function of following items (10);

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10. Türkan, Erdal, Interview (Prof. in Hacettepe University)

- Profit generated by the project.
- Interest payments of the project.
- Wages and salaries paid to the employee within the project.
- Foreign exchange earning.
- Rent expenses of the project, etc..

In developing countries and totalitarian systems, the social cost benefit analysis depends on engineering feasibility studies with fairly narrow and simple techniques. Since late 1970's environmental impact assessment (EIA) have begun to play an important role in project evaluation process in representative and pluralistic democracies. U.S. National Environmental Policy Act (NEPA) stated the requirements for an environmental impact analysis as follows (11):

- the environmental impact of proposed project.
- the residual effect that could not be mitigated by good planning.
- alternative of proposed project (including an assessment of doing nothing at all).
- the relationship between short-term economic gains and the longer term advantages of maintaining a productive system.
- a statement of any irreversible or irretrievable environmental or social consequences of implementing proposed project.

EIA is mainly applied in the U.S. and to some extent in the U.K.

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11. O'Riordan, Timothy, Swell, Derrick."From Project Appraisal to Policy Review" ed. Timothy & Derrick, John Willey & Sons Ltd., Banglore, 1981, p. 15.

in making final decision. In Japan, Australia, most West European countries and Canada, EIA is used mainly as descriptive criteria not as means for determining final project design. EIA becomes essential in pluralistic democracy where high interest group activity and high political influence exist. The properties of this medium are (12):

- policy centered decision structures,
- freedom of information,
- early publicity of project decisions,
- various mechanisms for administrative legal review,
- participatory with negotiation.

Under these conditions, before designing a project, interest group lobying, changing political mood, hearings, personalities of related parties must be analyzed. EIA must assess all possibilities for environmental damage or social cost.

In developing countries reactions to the projects related to natural environment has risen significantly in the last decade. Time has come for the project designers and CPO's to take care of environmental impact of related projects to both nature and public mood. This will also be a good introduction to wide environmental impact assessment.

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12. O'Riordan (1981), p. 20.

3. PROJECT APPRAISAL PROCESS IN DEVELOPMENT BANK OF TURKEY

In this chapter the project evaluation process used in Development Bank of Turkey is introduced. During the presentation of the process alternative methods and some criticism will be put forward.

3.1. RATIONALE BEHIND DEVELOPMENT BANKING

Development banks try to generate investment capital in developing countries where resources are limited. They supply technical assistance and additional resources to entrepreneurs to accelerate industrial development of the country. The rationales behind the development banks are as follows (13).

- In developing countries the propensity to save is low, therefore resources for investment are not enough, in addition the available resources are not directed to the development of the country.
- There are not enough number of entrepreneurs.
- There is not a mechanism which will transfer savings to industrial firms and allocate funds on project basis (unlike commercial banks).
- The need for independent institutions for supporting, orienting and evaluating investment projects.

3.2. DEVELOPMENT BANK OF TURKEY

The formation, transactions and activities of State Industry and Laborer Investment Bank, which was established in 1975 under

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13. Ekincioğlu, Erdal,"Kalkınma Bankacılığının Kuruluş Nedenleri" TKB, Ankara, 1989, pp. 4-5.

Statutory Decree no 13, have been arranged in 19888 through the Statutory Decree no. 329, and from July 15th 1988 on, the bank's title has been altered as Development Bank of Turkey (14). Development Bank of Turkey, Inc. and Tourism Bank of Turkey., which are development and investment banks in the sectors of manufacturing and tourism respectively, were merged in January 1989. As of January 2nd 1990, the bank's capital was increased to TL. one trillion.

The main activities of the bank are;

- Project Appraisal
- Financing
  - . Credit Activities
  - . Participation Activities
  - . Financial Leasing Activities
- Banking
- Research
- Securities
- Rehabilitation
- Training
- Technical Assistance
- Publicity and Market Support

3.3. PROJECT APPRAISAL PROCEDURE

Actualy the project appraisal process begins outside of Development Bank of Turkey as the bank grants medium and long

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14. Development Bank of Turkey,"Annual Report 1988", Ankara, 1989.

term credits to the projects which owns incentive certificate given by SPO.

The investment projects that have at least TL. 250 Million in regions that has development priority and TL. 5 Billion fixed investment amount in normal regions are candidates for taking incentive certificate from SPO (15).

Companies apply SPO with technical feasibility report of their project and a formal request. Project is evaluated under macroeconomic policy and an incentive certificate is arranged according to the subject and location of the project if it satisfies the criteria The projects that do not have competitive power in international markets, do not bring advanced and suitable technology , and do not reach specified production capacities in the sector, do not qualify for an incentive certificate (16).

The prospective project must be a;
- in a region where the investment is incited,
- within the content of incited investment subjects; the project must not be listed in Decree 86/13458 which defines the subjects that are not incited.

The possible incentives which also affects financial evaluation of the project are as follows;

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15. Trkiye Kalkinma Bankasi," Tesvik Mevzuati", Ankara, 1990.
16. Tugrul, Seyhan,"Tesvik Belgesi ve Yatirimlari Tesvik Tedbirlerinin Uygulanmasi", TKB VI. Proje Hazirlama ve Degerlendirme Semineri, Ankara, 1989, p. 5.

- Customs Exemption
- Investment Tax Credit (Investment Discount)
- Medium and Long Term Domestic and Foreign Loan
- Source Usage Support Premium
- Tax, Duty and Fee Exemptions
- Foreign Currency Allocation
- Building, Civil Works Fee Exemption
- Free Withdrawals From Financing Fund
- Working Capital Credit
- Value Added Tax Postponement

Conditions of all above items change due to the location and subject. The conditions and equity debt ratio limits are determined by SPO according to regulations and decrees published in Official Newspaper. An incentive certificate is shown in Appendix 1.

The appraisal procedure in Development Bank of Turkey is shown schematically in Fig 6.1. The procedure begins with the application of company to the General Directorate for financial support either in form of middle and long term investment and/or equity participator and/or working capital. The applications are transferred to the Directorate of Loans and the applicants are requested to fill out the "Application Form" prepared by the bank and some additional documents to be presented to the bank within 30 days. The companies which do not present the documents within specified period are automatically taken out of the procedure. The applications sent to the bank are subjected to a preliminary

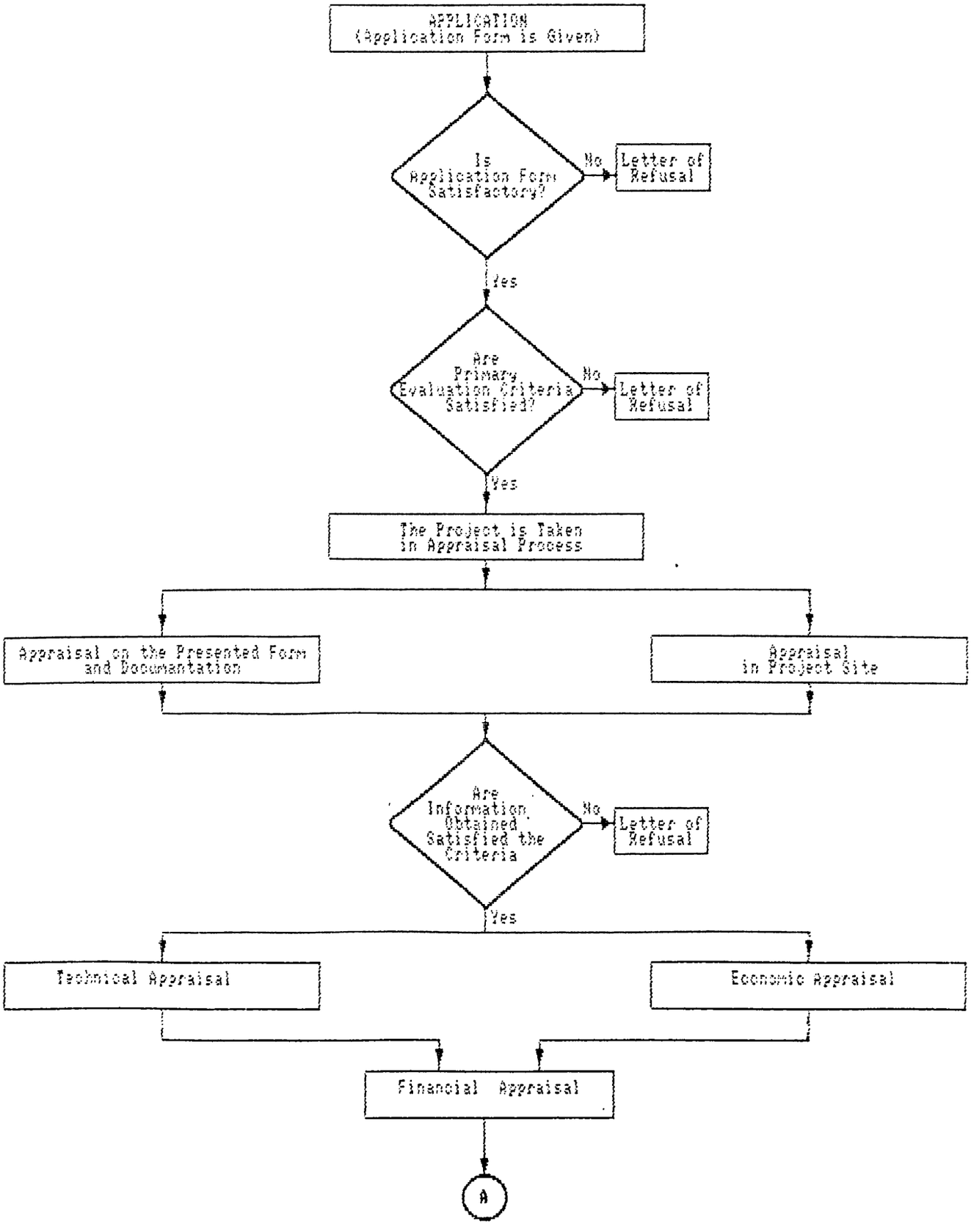

FIG.6.1 *Appraisal Process in Development Bank of Turkey*

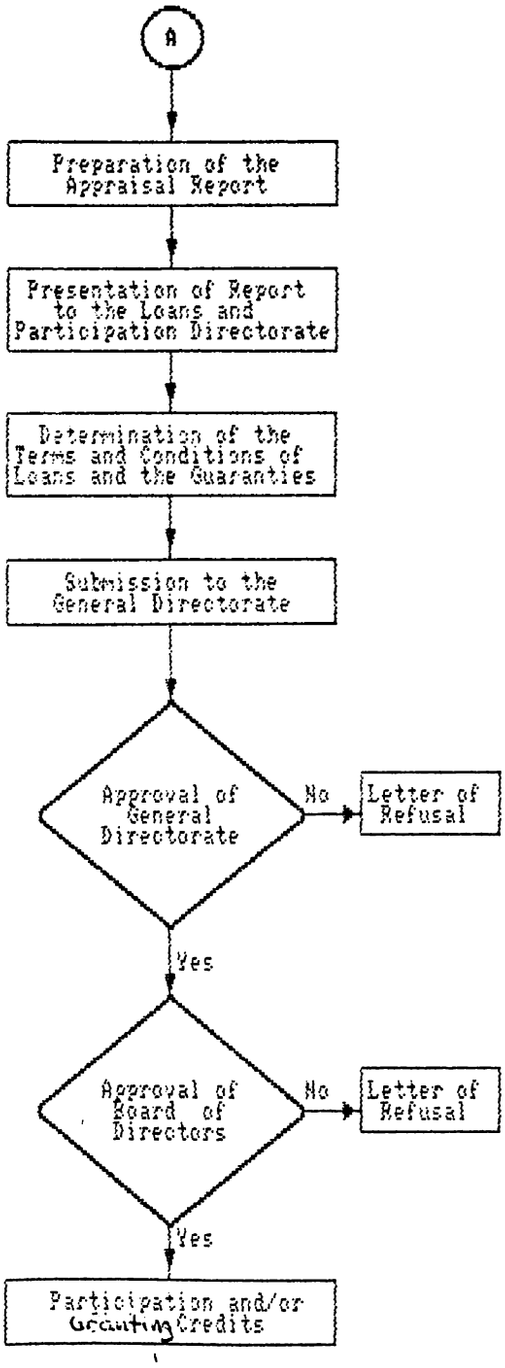

FIG.6.1 Continued

evaluation by the loan department. The applications which do not obey the conditions of incentive certificate, are rejected and a letter explaining the reasons of refusal is sent to the company. Those which satisfy the criteria are transferred to the Project Appraisal and Follow-Up Directorates (PAF).

A team which is composed of an economist, a financial analyst and a technical expert examine the form and documents in hand , demand additional data if needed and collect further information by visiting company and project site. If the project is found to be unsatisfactory under these information, a letter of refusal is sent to the company, otherwise evaluation activities are continued. Evaluation reports of each expert are gathered under project appraisal format of the bank. This report is presented to the Directorate of Loans and this directorate present it to the General Directorate after determining terms and conditions of the loans and guarantees. This report includes technical, economical and financial evaluation which will be presented in detail in Sections 3.3.1., 3.3.2. and 3.3.3. respectively.

The appraisal report is presented to the Board of Directors after the approval of the General Directorate. If the General Directorate does not approve the project, letter of refusal is sent to the company.

Following the final decision of the Board of Directors, the loan and/or equity participation becomes available. In case of loan, after supplying necessary documents and after getting required

guarantees, the entrepreneurs sign a loan agreement with the Directorate of Loans. A certain amount of loan is paid in advance and the rest allowed to be utilized following the presentation of the expense documents by the company and in accordance with financial plan mentioned in the project appraisal report. In case of equity participation, the Directorate of Participations realizes equity participation after carrying out the necessary procedures. The bank assigns representatives to both Board of Directors and Board of Auditors of the company.

The companies which the bank has financed are then followed up regularly by the Directorates of PAF and follow-up reports are prepared.

In this study our concern is project evaluation part of this procedure. In the following lines technical, economic and financial analysis and evaluation process of the bank will be explained and criticized.

3.3.1. TECHNICAL EVALUATION

In order to determine the technical feasibility of the project, technical evaluation is made by the technical experts in PAF. The major subjects covered in this evaluation are briefly explained below;

1. Location: The selection of the location must be the result of an extensive analysis. There are numerous factors that determine the location, but it is nearly impossible to satisfy these

criteria. The Development Bank of Turkey usually determines the location according to subject. Experiences showed that finding qualified personnel for the process is one of the major problem in location selection. many factories are forced to work at very low capacity utilization ratios because of this reason. The costs of errors have been always very expensive. The distance to the cultural centers, developed health centers, schools are important factors for keeping qualified personnel. Wood, leather, ceramic industries are some of the examples that suffer for this reason (17).

Political factors have always played an important role in selecting location both in general and in decisions of the bank. The site location choices are not determined by classical factors in case projects that has importance for national security. Another fact in Turkey is the tendency among medium and small investors to invest in their hometown.

Some of the classical factors for determining the location of the site are as follows:

- Possibility of easy transportation
- Availability of qualified personnel
- Availability of raw, auxiliary and operating material
- Appropriate climate
- Location of target market for output
- Employment rate in the region

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17. Çatak, Atilla. Interview (Senior Supervisor in Development Bank of Turkey.

2. Products: Main and waste products, and by-products are specified.

3. Production Capacity and Technical Capacity Utilization: The production capacity of the plant is specified according to market conditions, economies of scale and technical aspects. In this stage established capacity and technical capacity have to be distinguished. Established capacity is the maximum capacity of machine layout or system. On the other hand to determine technical capacity needs expertise in the field of project. In technical evaluation the technical capacity must be determined under the following factors (18);

- Availability of qualified personnel who can perform the process at higher capacity utilization ratio (CUR),
- Condition of machine, fatigue,
- The quality of raw materials,
- Harmony between the capacities of machines in the lay-out,
- Repair and maintenance duration of machines.

In this stage harmony between machines or units has to be emphasized. In every industry there are some machines which determine the overall capacity of the plant, for example ovens in ceramic industry. In a project study in this field, the capacities of all machines must be compatible with oven otherwise overcapacities will increase the cost of production, and undercapacities will cause accumulation of work-in process in

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18. Çatak.

production line. Though it seems to be very simple procedure, there are examples of this error in project studies (19).

4. Raw and Auxiliary Materials: The properties and prices of raw and auxiliary materials are given in detail. The bargaining power of suppliers has to be analyzed carefully to avoid possible material shortages. The price fluctuations must be observed. Fluctuating costs means fluctuating prices which is a quite important obstacle to hold a stable market share. During technical studies an effective quality control system has to be designed for raw and auxiliary material acceptance.

5. Production Methods: This stage is known to be the most important part of the technical evaluation. Flow diagrams and balance sheet of inputs and outputs are main concerns of this stage. The material balance directly affects cost accounting within the project, therefore very detailed analysis is essential for realistic estimation of costs. As these calculations will be the basis for operating expenses estimation, they will directly affect working capital need forecasts.

6. Organization: The number of necessary personnel is determined in accordance with implementation plan of project. In general three parts are considered in studies; management, administrative units, and technical units. The connections between administrative and technical units on cost accounting and market demands should

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19. Çatak,

be emphasized. The design of organization should be always compatible with the process applied in the proposed plant.

7. Economic Life: Expert should determine economic life of the project considering his expertise in the field of project, availability of qualified personnel who will execute the project and specifications of machines. In practice generally economic lifes are taken from accounting regulations published in the Official Newspaper.

8. Technical Assistance, Patent and Know-How: The cost of these services are calculated in detail. Advanced and suitable technology should be aimed in all project studies. Know-how applications should be specially analyzed and necessary guarantees should be asked in agreements. The content of guarantees for the success of the project can be listed as follows (20);

- The agreement should not end before the plant reaches a specified CUR or at least six months are passed after start-up.
- The agreement should include training of personnel.
- All types raw and auxiliary materials and their proportions should be listed in detail.
- The process should be described without hiding any detail.
- Special agreements for supplying spare parts of machines and operating materials should be held.

9. Implementation Plan: The implementation plan specifying the

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20. Çatak.

possible dates for the completion of investment and start-up dates is determined by technical expert. A successful implementation plan can not be designed unless fund flows are strictly specified. After credits are allocated, the start up date should be determined. If the implementation plan and fund flow are not compatible, the shortages in both working capital and payments will be possible.

10.Operating Expenses: Operating expenses are determined according to the planned process. Technical expert decides on the variable and fixed ratios of the expenses. The main operating expenses, used in evaluation, are as follows (21):

1. Raw Materials
2. Auxiliary Materials
3. Factory Supplies (Operating Materials)
4. Utilities
5. Wages and Salaries
6. Maintenance and Repair
7. General Expenses
8. Contingencies
9. Sales and Administrative Expenses
10. Transaction Taxes

11.Total Investment Cost: Total investment cost is the sum of fixed investment cost and working capital requirement.

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21. Turkiye Kalkinma Bankasi,"Yapilabilirlik Etüdü Hazirlama Esaslari", Ankara, 1989, p.53.

The cost of fixed investment items are determined by using the information on written contracts, orders, proforma invoices, realized expenses, and by making comparisons with the costs of similar investments. Then the basic items and their costs are summarized in an table.

Determination of the amount of working capital amount is a joint study of technical, economic and financial project analysts. Working capital need is the function of raw, auxiliary and operating materials, work in process, finished good inventory, cash in hand and receivables in a project study. A separate intention on receivable management should be given in project studies as it is one of the major sources of working capital shortage. In project studies realistic collection periods should be estimated according to economic situation and the sector rather than taking number from previous studies.

The important items of total investment cost are listed below (22):

I. Land

II. Fixed Investment

1. Project and Feasibility Studies

2. Technical Assistance, Patent, Know-How

3. Construction

4. Machinery and Equipment

4.1. Main Machinery and Equipment

4.2. Auxiliary Machinery and Equipment

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21. Türkiye Kalkınma Bankası,"Yapılabilirlik Etüdü Hazırlama Esasları", Ankara, 1989, p.90.

4.3. Transportation and Insurance

4.4. Taxes, Tariffs, Duties, Fees

5. Vehicles, Fixtures

6. Erection, Installation

7. General Expenses

8. Expenses for Trial Expenses

9. Contingencies

III. Working Capital Requirement

Because of inflationary effects, pre-investigations and delays in project appraisal process, serious conflicts arise in determining fixed investment cost (23). During the feasibility study total investment amount is calculated and credits are demanded according to this calculation. In general project evaluation process begins at least 30 days after application, the price increases within this period generate variances in investment cost forcing the limits of resources. In many cases generating new funds is inevitable, both owners' equity and loans have to be increased for this reason. Unfortunately, this starts another evaluation process and a series of bureaucratic operations for increasing capital which will invite additional inflationary effects. Capital increases are confirmed by the Ministry of Industry after for the firms having less than hundred partners and by Capital Market Board (SPK) for the firms having hundred or more partners after the approval of board of directors.

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23. Çatak.

The problem can be solved by giving more responsibility and authority to senior experts like applications in West Europe (24). In similar situations senior expert should have authority to determine a credit limit for the project and to allocate extra funds for inflationary variances and contingencies not to cause unnecessary bureaucratic operations.

3.3.2. ECONOMICAL EVALUATION

The purpose of the economic appraisal is to analyze the characteristics and composition of the actual and potential demand and supply conditions, of the products that are going to be produced (or being produced) by the execution of the project. This study aims to detect the marketability of the product. This appraisal is performed within a format in Development Bank of Turkey. In the following lines the important parts of the format will be analyzed.

1. Market Definition: The sector and subsector of the market which the products or services belong to, is defined according to the definitions of SPO. Incentives that are being distributed in this are listed.

In project appraisal studies this definition is sector definition rather than the description of market, the segments of the market, which the project will serve, are rarely explained.

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24. Çatak.

2. Product Definition: The kind of the product (consumer product or intermediate product), brand names, standards, and specifications of the goods are given. The existing substitutes and complementary goods are also exhibited in this part.

3. Supply Conditions: The total production capacity of the firms which are already producing the product and its substitutes is determined. Statistics concerning total production, inventory, exports and imports are gathered for past 10 - 15 years.

4. Demand Analysis: For making consistent and significant forecasts, the data belonging to consumption levels and export volumes in addition to production capacity, sales, inventory stocks and imports are collected. If the product is export oriented, the foreign market is also analyzed. Government import and export regimes, attitudes and probable changes in policy, price elasticity for the product should be analyzed.

Trend analysis and regression on available data are most common techniques in appraisal studies. Extensive market research can not be performed because of cost and lack of necessary personnel.

5. Comparison of Supply and Demand: Comparing aggregate supply and demand both globally (whole Turkey) and regionally, the economic capacity utilization ratio (CUR) is determined in the sector. This CUR is also used for the project as economic CUR throughout the study without evaluating the quality of marketing efforts of the

firm.

6. Product Prices: The price is determined according to market conditions and technical characteristics of the product. The price of existing brands, substitutes, major complements, the quality and image of product, and prices of inputs determine the price.

7. Sales and Competition: A simple environmental analysis is performed for the project. The main competitors in the market are introduced, supply of inputs is explained. The strengths and weaknesses of the company should also be analyzed, very detailed environmental analysis including the changes in economic conditions and policies should be implemented for the future of the project.

8. Production Capacity: According to sales forecasts and production plan estimates the economist together with a technical expert determines the capacity.

Capacity selection is closely related to the size of market (demand) and costs of production. In deciding about the capacity project formulators should do their best for reaching economies of scale. The advantages of working at economies of scale were proved by South Korea who established an export oriented industry at economies of scale with very low unit costs increasing her competitiveness in international trade (25).

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25. Ertek,Tümay," Economies of Scale and Capacity Selection", Project Evaluation International Training Workshop, Altınyunus, 1989, pp. 2.23.

The main objective of an economic appraisal should be very detailed market research. In today's highly competitive environment the purpose of a project should be to produce what can be marketed. Especially introduction of new products and services is quite risky and costly. Companies should perform marketing research to identify new market needs and opportunities and to respond them with appropriate product or service offerings (26). on the other hand the Bank should find out the realistic demand for the projected product by means of market researchs and evaluate the marketing capacity of the company to guarantee repayment of loans and their interests or/and return on investment in case of participation.

3.3.3. FINANCIAL EVALUATION

After the project is evaluated both technically and economically, the financial analyst prepares a report covering:

1. The evaluation of the present situation of the company.
2. The evaluation of the project.

Necessary information are provided from the documents of the company, balance sheets, income statements which are analyzed during the site visit. All other data necessary for financial evaluation are the results of technical and economic evaluation. In the following lines the financial evaluation procedure will be analyzed under important headings.

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26. Bodur, Muzaffer," Marketing Research for New and Existing Product Development", Project Evaluation International Training Workshop, Altinyunus, 1989, p. 1.

1. The Evaluation of the Present Situation of the Company:

a. Legal Status: The status, subject, ownership structure, equity capital are examined by using the main charter and other legal documents of the company.

b. Financial Status: The financial status of the company is analyzed from recent trial balances, balance sheets and income statements. Current assets,fixed assets, short and long term liabilities and owner's equity of the company are determined.

c. Commercial Status: The relations of the company with other parties are investigated. The prestige of company in its environment and any existing problems with customers and suppliers are examined.

d. Management: The management team of the company, members of board of directors and main staff are evaluated analyzing their background and present situations. If they are insufficient to execute the project an advisory team is assigned.

2. The Financial Appraisal of the Project:

a. Formulation of Financial Plan: The financial need and sources of the project, required to complete the investment and to start-up the operation as forecasted and stated in the technical evaluation and market studies.

b. Preparation of the Proforma Cash Flow and Income Statement:

i. Total Financial Needs and Sources: After the formulation of

financial plan. financial analyst specifies the amount of capital expansion. investment and/or working capital loans required to realize the project. Total financial needs and sources are shown in a similar form with the following table.

Table Total Financial Need and Sources

Total Financial Need	Total	19..	19..
A. Land			
B. Fixed Investment			
C. Reevaluated Amount of Fixed Inv.			
D. Price Increases			
E. Foreign Exchange Differences			
F. Interest Expenses			
Total Fixed Investment Cost			
G. Working Capital Requirement			
H. Price Increases			
Total Working Capital Requirement			
TOTAL FINANCIAL NEED			

Total Financial Sources	Total	19..	19..
A. Owner's Equity			
1. Equity Capital			
2. Equity Capital Expansion			
3. Project Funds			
4. Reevaluated Amount of Fixed Assets			
B. Loans			
1. Medium-Long Term Loans			
- Outstanding			
- Arrears			
- Proposed Loans			
2. Short Term Loans			
TOTAL FINANCIAL SOURCES			

When preparing this table the allowable limits of debt to total capitalization ratio according to regions is considered.

ii. Annual Sales Revenue: The annual revenue of the project at full capacity is calculated, regarding the minimum of CURs given by technical and economic experts. Inventories, sales amounts, tax discounts are also considered in finding out the net annual sales revenues.

iii. Annual Operating Expenses: The annual operating expenses are calculated according to CUR and inventory stock levels. Cost of goods sold and unit costs including depreciation and interest are calculated.

iv. Proforma Income Statement: This table illustrates the profit and loss of the project on annual basis comparing revenues and costs. After deduction of all payables and applicable taxes, the net income after tax is obtained from which the dividends payable is calculated.

v. Proforma Cash Flow Statement: In this statement the annual cash inflows and outflows are compared. Cash inflows are the result of sales and outflows are operating expenses, investment expenditures (renewals, additional working capital requirements) taxes, and dividends, loan interest payments and installments. The difference between the cash inflows and outflows determines the annual cash surplus or deficit.

vi. Determination of Debt Coverage Ratio: The annual debt coverage ratios are calculated by the following formula.

$$\text{Debt Coverage Ratio} = \frac{\text{Cash Inflow} - \left(\text{Operating Exp.} + \text{Investment Exp.} + \text{Taxes and Dividends}\right)}{\text{Interest Exp.} + \text{Loan Repayments}}$$

The larger this ratio, the better the ability of the firm to service its debt.

vii. Break-Even Analysis: The minimum capacity utilization ratio, which the project can make profit, is determined by break-even analysis.

The outline of the financial evaluation process was given in last three pages. The demonstration of this process is illustrated in the following chapter. This chapter also includes the alternative methods for some parts and different points of view is exhibited about this process.

4. DEMONSTRATION OF A FINANCIAL EVALUATION

In this section, financial evaluation of a Refined Cotton Oil Plant Project will be demonstrated. The plant will be located in Urfa within the South Anatolia Project and have the capacity to produce 7,500 tons refined cotton oil and 2,000 tons of crude oil. The implementation schedule was proposed as follows:

- Beginning of the investment : Jan. 1st 1990
- Beginning of trial production: Dec. 1st 1991
- Beginning of Production : Jan. 1st 1992

The capacity utilization ratios, that were determined after technical and economic evaluation, are tabulated below.

YEARS	1992	1993	1994	1995	1996	1997-2011
C.U.R.(%)	50	55	60	65	70	100

The economic life of the project was proposed as 20 years.

The necessary data for financial evaluation will be taken from technical and economic analysis of feasibility study of the project which was prepared by the Technological Research and Project Directorate of Development Bank of Turkey. The evaluation process will be illustrated by means of tables that will be prepared according to the formats of project appraisal reports. Generally names of the items are self explanatory for reader with some financial background. Necessary explanations will be given for the others. The reader is requested to follow the tables.

Table 7.1 stands for calculating investment amount. In this table general expenses are taken as 4% of sum of all investment except investment on land and start-up and training expenses. Contingencies, which compensate unexpected price increases, are taken to be 3% of intermediate total.

Annual operating expenses at full capacity are determined in Table 7.2. Sales expenses in this table are taken as 1% of total production expenses.

In Table 7.3, operating incomes at full capacity are determined. The commercial values of by-products and products are exhibited in this table.

The annual project expenses, that are illustrated in Table 7.4, are calculated by subtracting cost of product inventory stock for 15 days from operating expenses. In same way the project incomes are calculated in Table 7.5.

In Table 7.6, annual working capital requirement at full capacity is calculated. Specified stock durations for each item are given in table. Cash requirement is to compensate electric, water, employee, repair and maintenance, overheads and contingencies. In most pessimistic way 100% of sales is estimated to be paid back in 30 days.

Annual working capital requirements are shown in Table 7.7. The

increments up to 1997 are the result of increase in operating performance (CUR).

Table 7.8. illustrates amortization calculations in which the weightened average depreciation method is used. The ratio, which is found for the listed items, is used to depreciate the following assessment;

Amortization Ass.= Physical Investment - Investment on Land
- Source Usage Support Premium (SUSP)

SSUP is the 40% of equity in the region of project site.

Table 7.1.

INVESTMENT AMOUNT AND DISTRIBUTION OVER YEARS (1000 TL)

TYPE OF INVESTMENT	GRAND TOTAL	1990	1991
1. INVESTMENT ON LAND	150 000	150 000	0
2. PRE-PROJECT STUDIES	10 000	10 000	0
3. TECHNICAL CONSULTING	0	0	0
4. SITE PREPARATION & DEVELOPMENT	148 681	148 681	0
5. CIVIL WORKS	1 773 700	886 850	886 850
6. INVESTMENT ON TRANSPORTATION	60 000	30 000	30 000
7. MACHINERY & EQUIPMENT	7 780 075	4 538 377	3 241 698
8. FRIGHT AND INSURANCE	233 402	0	233 402
9. IMPORTATION & CUSTOMS EXPEND.	0	0	0
10.ERECTION	924 177	0	924 177
11.VEHICLES & FURNISHING	500 000	166 667	333 333
12.START UP & TRAINING EXPENSES	633 415	0	633 415
13.GENERAL EXPENSES	457 201	228 601	228 600
	0		
INTERMEDIATE TOTAL	12 670 651	6 159 176	6 511 475
14.CONTINGENCIES	380 119	184 775	195 344
	0		
PHYSICAL INVESTMENT AMOUNT	13 050 770	6 343 951	6 706 819

ANNUAL OPERATING EXPENSES AT FULL CAPACITY (1000 TL)

	TOTAL	FIXED (%)	VARIABL (%)	FIXED COST	VARIABLE COST
A. PRODUCTION EXPENSES	18 324 518			1 405 165	16 921 809
1. RAW MATERIALS	14 687 500	0	100	0	14 687 500
2. AUXILARY MATERIALS	218 575	0	100	0	218 575
3. OPERATING MATERIALS	50 000	0	100	0	50 000
4. ELECTRICITY	393 000	30	70	117 900	275 100
5. FUEL				0	0
6. WATER	450 000	20	80	90 000	360 000
7. WAGES AND SALARIES	646 880	50	50	323 440	323 440
8. MAINTENANCE AND REPAIR	1 167 000	70	30	816 900	350 100
9. OVERHEAD	352 259	8	92	28 181	325 294
10. CONTINGENCIES	359 304	8	92	28 744	331 800
B. COMMERCIAL EXPENSES	1 621 370			146 596	1 474 774
11. SALES AND MARKETING	183 245	80	20	146 596	36 649
12. PACKAGING	1 438 125	0	100	0	1 438 125
TOTAL OPERATING EXPENSES	19 945 888			1 551 761	18 396 583

TABLE 7.2.

OPERATING INCOMES AT FULL CAPACITY

PRODUCT	ANNUAL PRODUCTION	ANNUAL SALES	UNIT PRICE
1. COTTON GIN COVER	13 750 tons	7 750 tons	70 000 TL/ton
2. LINTER	5 500 tons	5 500 tons	750 000 TL/ton
3. CAKE	28 250 tons	28 250 tons	240 000 TL/ton
4. SOAP-STOCK	222 500 kg	222 500 kg	300 TL/kg
5. REFINED EDIBLE OIL			
A. 5 kg. TINS	3 750 tons	750 000 units	8 000 TL/unit
B. 10 kg. TINS	2 625 tons	262 500 units	15 750 TL/unit
C. 18 kg. TINS	1 125 tons	62 500 units	27 400 TL/unit
6. CRUDE OIL	2 000 tons	2 000 tons	1 000 000 TL/ton
TOTAL			

TABLE 7.3.

E 7.4.
RIBUTION OF OPERATING EXPENSES AND PROJECT EXPENSES

(1000 TL)

YEARS	1992	1993	1994	1995	1996	1997	1998-2010	2011
C.U.R. (%)	50	55	60	65	70	100	100	100
OPERATING EXPENSES	10 747 597	11 667 426	12 587 255	13 507 084	14 426 913	19 945 888	19 945 888	19 945 888
COST OF INVENTORY	(644 856)	(55 190)	(55 190)	(55 190)	(55 190)	(331 138)	0	1 196 754
luding Comercial Exp.) :								
PROJECT EXPENSES	10 102 741	11 612 236	12 532 065	13 451 894	14 371 723	19 614 750	19 945 888	21 142 642

LE 7.5.
TRIBUTION OF OPERATING INCOMES AND PROJECT INCOMES

(1000 TL)

YEARS	1992	1993	1994	1995	1996	1997	1998-2010	2011
C.U.R. (%)	50	55	60	65	70	100	100	100
OPERATING INCOMES	12 680 563	13 948 619	15 216 675	16 484 731	17 752 788	25 361 125	25 361 125	25 361 125
INVENTORY AT SALE	(760 834)	(76 083)	(76 083)	(76 083)	(76 083)	(456 501)	0	1 521 667
PROJECT INCOMES	11 919 729	13 872 536	15 140 592	16 408 648	17 676 705	24 904 624	25 361 125	26 882 792

ABLE 7.6.

CALCULATION OF WORKING CAPITAL AND VAT OF WORKING CAPITAL AT FULL CAPACITY (1000 TL)

ITEMS	(1) TIME (DAY)	ANNUAL OPERATING EXPENSES	FIXED (%)	VARIABLE (%)	WORKING CAPITAL			VAT		
					TOTAL	FIXED	VARIABLE	TOTAL	FIXED	VARIABLE
Rawmaterial Stocks	60	14 637 500	0.00	100.00	2 439 583	0	2 439 583	243 958	0	243 958
Auxiliary Material Stocks	30	218 575	0.00	100.00	18 215	0	18 215	1 822	0	1 822
Operating Material Stocks	15	50 000	0.00	100.00	2 083	0	2 083	208	0	208
Finished Good Inventories	15	19 176 258	7.00	93.00	799 011	55 931	743 080	79 901	5 593	74 308
Work In Process (2)	15	586 385	7.00	93.00	24 433	1 710	22 723	2 443	171	2 272
Accounts Receivable	30	19 945 888	7.00	93.00	1 662 157	116 351	1 545 806	166 216	11 635	154 581
Cash Requirement (3)	30	3 551 688	44.00	56.00	295 974	130 229	165 745	1 900	867	1 033
Packaging Material Stocks	30	1 438 125	0.00	100.00	119 844	0	119 844	11 984	0	11 984
T O T A L					5 361 300	304 221	5 057 079	508 432	18 266	490 166

TABLE 7.7.

DISTIRUBUTION OF WORKING CAPITAL OVER YEARS (1000 TL)

YEARS	1991	1992	1993	1994	1995	1996	1997
C.U.R. (%)	-	50	55	60	65	70	100
WORKING CAPITAL	3 096 110	277 362	277 362	277 362	277 362	1 664 174	-

TABLE 7.8.

DEPRECIATION (1000 Dr)

INVESTMENT ITEMS	COST	ANNUAL DEPR. RATE (%)AR)	ANNUAL DEPRECIATION
1. FACTORY AND AUXILARY BUILDINGS	1 287 000	4	51 480
2. ADMINISTRATIVE AND SOCIAL BUILDINGS	420 000	2	8 400
3. SITE PLANNING	148 681	4	5 947
4. ROADS	60 000	6	3 600
5. VEHICLES AND FURNISHING	500 000	15	75 000
6. MACHINERY AND EQUIPMENT	8 937 654	10	893 765
7. PRE-PROJECT AND PROJECT STUDIES	10 000	20	2 000
8. WATER TANKS	24 000	4	960
TOTAL	11 387 335		1 041 153

AVARAGE RATE OF DEPRECIATION	0.091	
TIME OF AMORTIZATION	10.94	(11 YEARS)
TOTAL ASSETS TO BE DEPR.(1)	9 887 033	
ANNUAL DEPREC. AMOUNT FOR 10	903 979	
DEPREC. AMOUNT AT THE 11 th. YEAR	847 244	

1. , = Fixed investment amount - price increases
- land investment - SUSP

The payment plans of 1st and 2nd Slices of Public Partnership Fund Investment Credit and total payment plan are exhibited in Table 7.9., Table 7.10. and Table 7.11. respectively on equal annuities basis. There are not any repayments during first two years and 20% of the credit is a donation. Therefore, during first two years only interests will be paid and 80% of the allocated credit will be repayed in following four years.

The payment plans for same investment credit is established by the method used in project appraisal reports in Table 7.12, Table 7.13 and Table 7.14. The net present values of these payments also give the principal with same interest rate. The rationale behind this payment plan is the wish to recover the principal payment first.

PUBLIC PARTNERSHIP FUND INVESTMENT CREDIT PAYMENT PLAN (1st SLICE)

TOTAL CREDIT : 2 500 000 000
DATE : 1.5.1990
MATURITY : 2/6 *
INTEREST RATE : 35%

(1000 TL)

DATE	PRINCIPAL	PRIN. PAYM.	INTEREST	TOTAL
1. 5.1990	2 000 000			
1.11.1990	2 000 000		350 000	350 000
1. 5.1991	2 000 000		350 000	350 000
1.11.1991	2 000 000		350 000	350 000
1. 5.1992	2 000 000		350 000	350 000
1.11.1992	1 867 088	132 912	350 000	482 912
1. 5.1993	1 710 916	156 172	326 740	482 912
1.11.1993	1 527 413	183 502	299 410	482 912
1. 5.1994	1 311 798	215 615	267 297	482 912
1.11.1994	1 058 451	253 348	229 565	482 912
1. 5.1995	760 767	297 683	185 229	482 912
1.11.1995	410 989	349 778	133 134	482 912
1. 5.1996	0	410 989	71 923	482 912
TOTAL		2 000 000	3 263 299	5 263 299

* Payments begin after two years from the time the loan is issued, maturity of the loan is two years

Table 7.9.

TABLE 7.10.

PUBLIC PARTNERSHIP FUND INVESTMENT CREDIT PAYMENT PLAN (2ND SLICE)

TOTAL CREDIT : 5 000 000 000
DATE : 1.5.1991
MATURITY : 2/6
INTEREST RATE : 35%
SEMI ANNUAL PAYMENTS

(1000 TL)

DATE	PRINCIPAL	PRIN. PAYM.	INTEREST	TOTAL
1. 5.1991	4 000 000			
1.11.1991	4 000 000		700 000	350 000
1. 5.1992	4 000 000		700 000	700 000
1.11.1992	4 000 000		700 000	700 000
1. 5.1993	4 000 000		700 000	700 000
1.11.1993	3 734 175	265 825	700 000	965 825
1. 5.1994	3 421 831	312 344	653 481	965 825
1.11.1994	3 054 827	367 004	598 820	965 825
1. 5.1995	2 623 597	431 230	534 595	965 825
1.11.1995	2 116 902	506 695	459 129	965 825
1. 5.1996	1 521 535	595 367	370 458	965 825
1.11.1996	821 978	699 556	266 269	965 825
1. 5.1997	0	821 978	143 846	965 825
	TOTAL	4 000 000	6 526 598	9 476 598

TOTAL CREDIT PAYMENTS BY YEARS

(1000 TL)

YEARS	PRIN. PAYM.	INTEREST	TOTAL
1990		350 000	350 000
1991		1 400 000	1 400 000
1992	132 912	2 100 000	2 232 912
1993	605 499	2 026 151	2 631 649
1994	1 148 311	1 749 163	2 897 474
1995	1 585 387	1 312 087	2 897 474
1996	1 705 912	708 649	2 414 562
1997	821 978	143 846	965 825
TOTAL	6 000 000	9 789 897	15 789 897

Table 7.11.

TABLE 7.12.

PUBLIC PARTNERSHIP FUND INVESTMENT CREDIT PAYMENT PLAN (1st SLICE)

TOTAL CREDIT : 2 500 000 000
DATE : 1.5.1990
MATURITY : 2/6
INTEREST RATE : 35%
SEMI ANNUAL PAYMENTS

(1000 TL)

DATE	PRINCIPAL	PRIN. PAYM.	INTEREST	TOTAL
1. 5.1990	2 000 000			
1.11.1990	2 000 000		350 000	350 000
1. 5.1991	2 000 000		350 000	350 000
1.11.1991	2 000 000		350 000	350 000
1. 5.1992	2 000 000	222 222	350 000	572 222
1.11.1992	1 777 778	222 222	311 111	533 333
1. 5.1993	1 555 556	222 222	272 222	494 444
1.11.1993	1 333 333	222 222	233 333	455 556
1. 5.1994	1 111 111	222 222	194 444	416 667
1.11.1994	888 889	222 222	155 556	377 778
1. 5.1995	666 667	222 222	116 667	338 889
1.11.1995	444 444	222 222	77 778	300 000
1. 5.1996	222 222	222 222	38 889	261 111
TOTAL		2 000 000	2 800 000	4 800 000

TABLE 7.13.

PUBLIC PARTNERSHIP FUND INVESTMENT CREDIT PAYMENT PLAN (2ND SLICE)

TOTAL CREDIT : 5 000 000 000
DATE : 1.5.1991
MATURITY : 2/6
INTEREST RATE : 35%
SEMI ANNUAL PAYMENTS

(1000 TL)

DATE	PRINCIPAL	PRIN. PAYM.	INTEREST	TOTAL
1. 5.1991	4 000 000			
1.11.1991	4 000 000		700 000	350 000
1. 5.1992	4 000 000		700 000	700 000
1.11.1992	4 000 000		700 000	700 000
1. 5.1993	3 555 556	444 444	700 000	1 144 444
1.11.1993	3 111 112	444 444	622 222	1 066 666
1. 5.1994	2 666 667	444 444	544 445	988 889
1.11.1994	2 222 223	444 444	466 667	911 111
1. 5.1995	1 777 779	444 444	388 889	833 333
1.11.1995	1 333 335	444 444	311 111	755 555
1. 5.1996	888 890	444 444	233 334	677 778
1.11.1996	444 446	444 444	155 556	600 000
1. 5.1997		444 446	77 778	522 224
TOTAL		4 000 000	5 600 001	9 600 001

TABLE 7.14.

TOTAL CREDIT PAYMENTS BY YEARS

(1000 TL)

YEARS	PRIN. PAYM.	INTEREST	TOTAL
1990		350 000	350 000
1991		1 400 000	1 400 000
1992	444 444	2 061 111	2 505 556
1993	1 333 333	1 827 778	3 161 111
1994	1 333 333	1 361 111	2 694 444
1995	1 333 333	894 445	2 227 778
1996	1 111 111	427 778	1 538 889
1997	444 446	77 778	522 224
TOTAL	6 000 000	8 400 001	14 400 001

Proforma Income Statement and Cash Flow Table are presented in Table 7.15. and Table 7.16. respectively according to fixed value method. The interest expenses and principal payments are taken from Table 7.11.

It is preferred to use real values as evaluation under nominal values requires exact prediction of annual inflation rates, but unfortunately the economic instability in Turkey does not allow significant forecasts. In the financial evaluation studies in the bank, the inflation forecasts of SPO are used. For project evaluation and feasibility studies in 1989, 35% for 1990, 20% for 1991, and 10% for the following years were used as expected inflation rates. In the beginning of 1990, 56% for 1990 and 45% for 1991 were used as inflation rates again referring to SPO. Because of unstability, the evaluation is not consistont within different periods of time. The economic life of a project is usually between 15 - 20 years, in this case the errors that will be generated from wrong estimations can not be neglected. The evaluation under real value is most appropriate method for the economies like Turkey and adds that the instability of Turkish Economy makes project evaluation impossible (27).

After calculating suitable discount rate, that is cost of capital in present situation, the financial evaluation is real terms will serve best for determining net present value, but in this case the debt service ability of the project will be

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27. Turkan

underestimated. As the debt service coverage ratio is major evaluative criterion, a separate evaluation should be performed for determining this ratio. This evaluation will cover near future. This period, which will include maturities of debts, also the most problematic time of the project because of low CURs. The inflation forecasts for near future will be more healthy, even in this case the objective choice of inflation rates free from political goals will be vital for realistic evaluation of projects.

In Table 7.15 Investment Discount stands for Investment Tax Credit (ITC). The assessment for this incentive is calculated under the following formula,

ITC Assessment= Phys. Inv. + Financial Exp. - Inv. on Land

ITC is 60% of this assessment in the region of project site. This amount should be reduced from tax assessment in five years. This period can be extended in case of losses in the beginning years. The corporate tax is 49.22% and income tax withholding is 10.5% of investment discount.

In Table 7.16, Cash Flow Table, the gross cash flow is the difference between cash inflow and net project expenses. Gross cash flow represent all benefits that the project generates including social benefits (taxes, interest expenses, principal payments). This table also shows that the project does not have the ability to service its debts.

In Table 7.17. price indices are tabulated referring the inflation rates given by SPO in 1989, the annual average price indices of this table were used in evaluation of the project under real values in original feasibility study. Table 7.18. and 7.19 are established referring to this study with necessary corrections. Depreciation, financing expenses, interest expenses, principal payments are restated. Though debt service Ratios in 1993 and 1996 are critical, the project pay both principal payments and interest expenses by stopping dividend payments.

In Table 7.20. and Table 7.21., the financial requirement of the project under real and current values are calculated respectively. For the region of project site, SUSP is 40% of equities and investment premium is sum of 25% of main machinery cost and 10% of cost of vehicles. In Table 7.20. 56% and 45% of inflation rates are taken for 1990 and 1991 respectively.

TABLE 7.15.

PROJECTED INCOME STATEMENT

EXPLANATIONS	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1. PROJECT REVENUE	11,919,[illegible]	13,612,536	15,140,593	16,468,643	17,676,705	24,904,624	25,361,125	25,361,125	25,361,125	25,361,125
2. PROJECT EXPENSES	10,132,711	11,612,236	12,532,665	13,451,894	14,371,723	19,614,750	19,945,888	19,945,888	19,945,888	19,945,888
3. PROJECT INCOME	1,816,953	2,260,300	2,605,527	2,956,754	3,304,982	5,289,874	5,415,237	5,415,237	5,415,237	5,415,237
4. DEPRECIATION	903,979	903,979	903,979	903,979	903,979	903,979	903,979	903,979	903,979	903,979
5. FINANCING EXPENSES	2,150,[illegible]	2,026,151	1,749,163	1,312,037	706,849	140,846	0	0	0	0
6. INCOME BEFORE TAX	(1,136,991)	(669,830)	(44,615)	740,698	1,694,354	4,245,049	4,511,258	4,511,258	4,511,258	4,511,258
7. INVESTMENT DISCOUNT	0	0	0	740,685	1,692,354	4,242,049	2,115,371	0	0	0
8. CORPORATION TAX ASSESSMENT	0	0	0	0	0	0	2,395,887	4,511,258	4,511,258	4,511,258
9. CORPORATION TAX	0	0	0	0	0	0	1,179,[illegible]	2,220,441	2,220,441	2,220,441
10. INCOME TAX STOPPAGE	0	0	0	77,772	177,697	445,415	222,114	0	0	0
11. INCOME (LOSS)	(1,136,991)	(669,830)	(44,615)	662,916	1,516,657	3,796,634	3,189,338	2,290,817	2,290,817	2,290,817
12. RESERVED EARNINGS	0	0	0	37,034	84,616	212,102	225,563	225,563	225,563	225,563
13. FIRST DIVIDENDS	0	0	0	312,941	715,020	1,792,266	1,442,163	1,032,627	1,032,627	1,032,627
14. RETAINED EARNING	(1,136,991)	(669,830)	(44,615)	349,975	799,637	2,004,366	1,667,726	1,258,190	1,258,190	1,258,190

2002	2003-2010	2011
25,361,125	25,361,125	26,382,792
19,945,888	19,945,888	21,142,642
5,415,237	5,415,237	5,740,150
847,244	0	0
0	0	0
4,567,993	5,415,237	5,740,150
0	0	0
4,567,993	5,415,237	5,740,150
2,246,366	2,665,380	2,825,302
0	0	0
2,319,627	2,749,857	2,914,848
228,400	270,762	287,008
1,045,614	1,239,548	1,313,920
1,374,613	1,510,310	1,600,926

TABLE 7.16.

CASH FLOW TABLE

EXPLANATIONS	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
A. CASH INFLOW	11,555,955	14,551,058	15,389,792	16,694,265	17,999,785	24,762,421	25,339,300	25,361,125	25,361,125	25,361,125	25,361,125
1. PROJECT REVENUE	11,919,729	13,575,536	15,140,592	16,408,645	17,676,705	24,904,624	25,361,125	25,361,125	25,361,125	25,361,125	25,361,125
2. ACCOUNT RECEIVABLE	195,696	97,841	63,403	63,403	63,403	361,395	22,825	0	0	0	0
3. VAT DISCOUNT	239,515	278,163	312,803	349,043	386,455	219,192	0	0	0	0	0
B. CASH OUTFLOW	12,187,879	14,445,773	15,660,910	16,904,032	18,933,017	21,721,666	22,316,149	23,185,777	23,185,777	23,185,777	23,418,285
1. OPERATING PERIOD EXPENSES	277,362	277,362	277,362	277,362	1,664,174	0	0	0	0	0	0
2. NET PROJECT EXPENSES	9,597,604	11,536,761	12,496,074	13,405,903	14,325,732	19,352,598	19,929,331	19,945,888	19,945,888	19,945,888	19,945,888
a. PROJECT EXPENSES	10,102,741	11,612,236	12,532,065	13,451,894	14,371,723	19,614,750	19,945,888	19,945,888	19,945,888	19,945,888	19,945,888
b. COST OF ACCOUNT RECEIVABLE	505,137	75,475	45,991	45,991	45,991	262,152	16,557	0	0	0	0
3. TAXES	0	0	0	77,772	177,697	445,415	1,401,376	2,220,441	2,220,441	2,220,441	2,248,366
4. DIVIDENDS	0	0	0	245,551	350,553	957,529	1,019,448	1,019,448	1,019,448	1,019,448	1,224,031
5. INTEREST EXPENSES	2,190,000	2,026,151	1,749,163	1,312,087	795,849	143,646	0	0	0	0	0
6. PRINCIPAL PAYMENTS	122,912	605,499	1,148,311	1,585,357	1,705,912	821,978	0	0	0	0	0
C. CASH DIFFERENCE	(631,923)	(894,715)	(271,118)	(209,744)	(934,232)	3,040,755	2,993,151	2,175,348	2,175,348	2,175,345	1,942,840
D. GROSS CASH FLOW	1,556,364	2,314,297	2,963,718	3,288,385	3,673,053	5,409,823	5,415,669	5,415,237	5,415,237	5,415,237	5,415,237
E. DEBT COVERAGE RATIO	0.75	0.85	0.91	0.93	0.61	4.15					

2003-2010	2011
25,361,125	25,594,736
25,361,125	26,562,792
0	1,299,056
0	0
23,935,299	24,269,054
0	0
19,945,888	20,145,348
19,945,888	21,142,642
0	997,294
2,665,380	2,825,302
1,224,031	1,298,404
0	0
0	0
1,525,826	1,325,682
5,415,237	5,449,388

PRICE INDEX TABLE

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
EXPECTED ANNUAL INF. RATES (%) :	35.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
PRICE INDEX AT THE END OF PERIOD (PI=100 FOR 1989)	135.0	162.0	178.2	196.0	215.6	237.2	260.9	287.0	315.7	347.3	382.0
AVERAGE PI IN PERIOD :	117.5	148.5	170.1	187.1	205.8	226.4	249.0	273.9	301.3	331.5	364.6

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
EXPECTED ANNUAL INF. RATES (%) :	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
PRICE INDEX AT THE END OF PERIOD (PI=100 FOR 1989)	420.2	462.2	508.4	559.3	615.2	676.7	744.4	818.9	900.7	990.8	1089.9
AVERAGE PI IN PERIOD :	401.1	441.2	485.3	533.9	587.3	646.0	710.6	781.6	859.8	945.8	1040.4

TABLE T.18

PROFORMA INCOME STATEMENT

EXPLANATIONS	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1. PROJECT REVENUE	11,919,729	13,872,536	15,140,592	16,408,648	17,676,705	24,904,624	25,361,125	25,361,125	25,361,125	25,361,125
2. PROJECT EXPENSES	10,103,741	11,612,236	12,532,065	13,451,894	14,371,723	19,614,750	19,945,988	19,945,988	19,945,988	19,945,988
3. PROJECT INCOME	1,816,988	2,260,300	2,608,527	2,956,754	3,304,982	5,289,874	5,415,237	5,415,237	5,415,237	5,415,237
4. DEPRECIATION	531,490	483,123	439,203	399,275	362,979	329,979	299,981	272,710	247,919	225,380
5. FINANCING EXPENSES	1,211,705	976,846	661,308	395,069	171,768	28,391	0	0	0	0
6. INCOME BEFORE TAX	73,843	800,331	1,508,016	2,162,411	2,770,236	4,931,504	5,115,256	5,142,527	5,167,318	5,189,857
7. INVESTMENT DICOUNT	73,843	800,331	1,508,016	2,162,411	2,770,236	1,475,620	0	0	0	0
8. CORPORATION TAX ASSESMENT	0	0	0	0	0	3,455,884	5,115,256	5,142,527	5,167,318	5,189,857
9. CORPORATION TAX	0	0	0	0	0	1,700,986	2,517,729	2,531,152	2,543,354	2,554,448
10. INCOME TAX STOPPAGE	7,754	84,035	158,342	227,053	290,875	154,940	0	0	0	0
11. INCOME (LOSS)	66,084	716,296	1,349,674	1,935,358	2,479,361	3,075,578	2,597,527	2,611,375	2,623,964	2,635,409
12. RESERVED EARNINGS	3,698	40,017	75,401	108,121	138,512	246,575	255,763	257,126	258,366	259,493
13. FIRST DIVIDENDS	31,291	338,140	637,137	913,619	1,170,425	1,414,501	1,170,382	1,177,124	1,182,799	1,187,956
14. RETAINED EARNING	34,843	378,156	712,536	1,021,739	1,308,937	1,661,076	1,426,645	1,434,251	1,441,165	1,447,451

2002	2003-2010	2011
25,361,125	25,361,125	26,892,792
19,945,988	19,945,988	21,152,642
5,415,237	5,415,237	5,740,150
192,051	0	0
0	0	0
5,223,186	5,415,237	5,740,150
0	0	0
5,223,186	5,415,237	5,740,150
2,570,852	2,665,380	2,825,302
0	0	0
2,652,334	2,749,857	2,914,848
261,159	270,762	287,008
1,195,567	1,239,548	1,313,920
1,456,747	1,510,310	1,600,929

TABLE 7.19.

CASH FLOW TABLE

EXPLANATIONS	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
A. CASH INFLOW	11,439,884	13,955,459	15,229,070	16,499,414	17,769,035	24,623,241	25,338,389	25,361,125	25,361,125	25,361,125
1. PROJECT REVENUE	11,919,729	13,872,536	15,140,592	16,408,648	17,676,705	24,984,624	25,361,125	25,361,125	25,361,125	25,361,125
2. ACOUNT RECEIVABLE	595,[illegible]	97,641	63,403	63,403	63,403	361,395	22,825	0	0	0
3. VAT DISCOUNT	123,941	147,594	151,881	154,169	154,796	80,012	0	0	0	0
B. CASH OUTFLOW	11,306,919	13,325,733	14,868,035	15,807,926	19,049,127	22,813,651	23,617,943	23,654,164	23,672,041	23,695,394
1. OPERATING PERIOD EXPENSES	277,362	277,362	277,362	277,362	1,644,174	0	0	0	0	0
2. NET PROJECT EXPENSES	9,595,[illegible]	11,536,761	12,486,074	13,405,903	14,325,732	19,352,598	19,929,351	19,945,888	19,945,888	19,945,888
a. PROJECT EXPENSES	10,102,741	11,612,236	12,532,065	13,451,894	14,371,723	19,614,758	19,945,888	19,945,888	19,945,888	19,945,888
b. COST OF ACOUNT RECEIVABLE	595,[illegible]	75,475	45,991	45,991	45,991	262,159	16,587	0	0	0
3. TAXES	7,754	84,035	153,342	227,053	290,875	1,855,926	2,517,729	2,531,152	2,543,954	2,554,448
4. DIVIDENDS	31,281	338,140	637,137	915,619	1,170,425	1,414,161	1,170,892	1,177,124	1,182,199	1,187,958
5. INTEREST EXPENSES	1,211,765	976,846	661,308	395,663	171,768	26,391	0	0	0	0
6. PRINCIPAL PAYMENTS	261,254	712,594	647,812	586,921	446,153	162,235	0	0	0	0
C. CASH DIFFERENCE	72,174	(3,249)	361,035	691,488	(281,039)	1,809,590	1,720,388	1,706,961	1,689,084	1,672,831
D. GROSS CASH FLOW	1,361,450	2,385,723	2,742,996	3,093,511	3,442,356	5,270,648	5,408,969	5,415,237	5,415,237	5,415,237
E. DEBT COVERAGE RATIO	1.06	1.00	1.28	1.70	0.85	10.49				

2002	2003-2010	2011
25,361,125	25,361,125	25,594,736
25,361,125	25,361,125	26,882,792
0	0	1,288,056
0	0	0
23,712,327	23,850,816	24,284,570
0	0	0
19,945,888	19,945,888	20,145,348
19,945,888	19,945,888	21,142,642
0	0	997,294
2,570,852	2,665,390	2,825,302
1,195,587	1,239,548	1,313,920
0	0	0
0	0	0
1,648,798	1,510,309	1,310,166
5,415,237	5,415,237	5,449,388

TABLE 7.20.

FINANCIAL REQUIREMENTS AND RESOURCES

	GRAND TOTAL	1990	1991	1992	1993	1994	1995	1996
FINANCING REQUIREMENTS								
A. PYSCHICAL INVESTMENT AMOUNT	13 050 770	6 343 951	6 706 816					
B. PRICE INCREASES	11 695 238	3 425 734	8 269 504					
C. FINANCING EXPENSES	1 750 000	350 000	1 400 000					
FIXED INVESTMENT AMOUNT	26 496 008	10 119 685	16 376 320					
D. WORKING CAPITAL AMOUNT	9 687 236	0	6 913 614	277 362	277 362	277 362	277 362	1 644 174
1. WORKING CAPITAL	5 869 732	0	3 096 110	277 362	277 362	277 362	277 362	1 644 174
2. PRICE INCREASES	3 817 504	0	3 817 504					
TOTAL INVESTMENT	36 183 244	10 119 685	23 289 934	277 362	277 362	277 362	277 362	1 644 174
FINANCING RESOURCES								
A. EQUITIES	19 037 909	6 568 433	9 695 853	277 362	277 362	277 362	277 362	1 644 174
1. CAPITAL	16 264 287	6 568 433	9 695 853					
2. PROJECT FUNDS	0	0	0					
3. OTHER EQUITIES	2 773 622	0	0	277 362	277 362	277 362	277 362	1 644 174
B. INVESTMENT INCENTIVES	9 645 331	1 051 252	8 594 081					
1.SOURCE USAGE SUPPORT PREMIUM	7 615 164	0	7 615 164					
2.INCENTIVE PREMIUM	2 030 167	1 051 252	978 915					
C. INVESTMENT CREDIT	7 500 000	2 500 000	5 000 000					
TOTAL RESOURCES	36 183 240	10 119 685	23 289 934	277 362	277 362	277 362	277 362	1 644 174

BLE 7.21.

FINANCIAL REQUIREMENTS AND RESOURCES (FOR EVALUATION UNDER CONST. VALUES)

	GRAND TOTAL	1990	1991	1992	1993	1994	1995	1996
FINANCING REQUIREMENTS								
A. PYSCHICAL INVESTMENT AMOUNT	13 050 770	6 343 951	6 706 816					
B. PRICE INCREASES	4 362 998	1 110 191	3 252 807					
C. FINANCING EXPENSES	1 750 000	350 000	1 400 000					
FIXED INVESTMENT AMOUNT	19 163 768	7 804 142	11 359 623					
D. WORKING CAPITAL AMOUNT	7 885 413	0	5 111 791	277 362	277 362	277 362	277 362	1 644 174
1. WORKING CAPITAL	5 869 732	0	3 096 110	277 362	277 362	277 362	277 362	1 644 174
2. PRICE INCREASES	2 015 681	0	2 015 681					
TOTAL INVESTMENT	27 049 181	7 804 142	16 471 414	277 362	277 362	277 362	277 362	1 644 174
FINANCING RESOURCES								
A. EQUITIES	12 755 274	4 252 890	5 728 762	277 362	277 362	277 362	277 362	1 644 174
1. CAPITAL	9 981 652	4 252 890	5 728 762					
2. PROJECT FUNDS	2 195 916	0	0	34 893	277 362	277 362	277 362	1 308 937
3. OTHER EQUITIES	577 706	0	0	242 469	0	0	0	335 237
B. INVESTMENT INCENTIVES	6 793 904	1 051 252	5 742 652					
1.SOURCE USAGE SUPPORT PREMIUM	4 763 737	0	4 763 737					
2.INCENTIVE PREMIUM	2 030 167	1 051 252	978 915					
C. INVESTMENT CREDIT	7 500 000	2 500 000	5 000 000					
TOTAL RESOURCES	27 049 178	7 804 142	16 471 414	277 362	277 362	277 362	277 362	1 644 174

The net present value (NPV) and internal rate of return (IRR) of the project are calculated in Table 7.22. The discount rate is taken as the cost of capital and determined as follows; (necessary data is taken from Table 7.20)

- Owners' Equity (E) = TL. 19,037,909,000
- Total Incentives (I) = TL. 9,645,331,000
- Total Debt (D) = TL. 7,500,000,000
- Total Capitalization (C) = TL. 36,183,240,000

The required rate of return for equity is estimated as 125% by taking commercial interest rates in the market into account and adding some risk premium. In case this required rate can be estimated according to the sector of the project applying CAPM(28),but unfortunately necessary data is not available in Turkey.

The cost of debt will be taken as 80% of specified interest rate (35%) as 20% of the credit is donation. The cost of debt is 28%. The cost of incentives is of course zero. Then the cost of capital can be calculated as follows.

Cost of Capital= 125%(E/C) + 28%(D/C)

= 71.57%

The real cost can be determined as follows,(inflation rate will be taken as 56%)

---

28. Hirst p. 64

$1 + r = (1 + 0.7157)/(1 + 0.56)$

Then,

$r = 10\%$

In the first part of Table 7.22, NPV of net cash flows is negative and IRR is very low. This indicates that this project is not attractive for the investor. on the other hand NPV of gross flow is positive meaning that project can generate value added to natioanal economy.

TABLE 7.22

CALCULATION OF NET PRESENT VALUE
AND INTERNAL RATE OF RETURN
OF NET CASH FLOWS

DISCOUNT RATE: 10%
(1000 TL)

YEARS	:NET CASH FLOW (*)
1990	(10 119 685)
1991	(23 289 934)
1992	(553 920)
1993	(394 715)
1994	(271 118)
1995	34 777
1996	(583 379)
1997	3 998 584
1998	4 007 599
1999	3 194 796
2000	3 194 796
2001	3 194 796
2002	3 166 268
2003	2 749 857
2004	2 749 857
2005	2 749 857
2006	2 749 857
2007	2 749 857
2008	2 749 857
2009	2 749 857
2010	2 749 857
2011	2 624 086
NPV	(17 158 031)
IRR	0.0207

* Cash Diff + Dividends

CALCULATION OF NET PRESENT VALUE
AND INTERNAL RATE OF RETURN
OF GROSS CASH FLOWS

DISCOUNT RATE: 10%
(1000 TL)

YEARS	:GROSS CASH FLOW
1990	(10 119 685)
1991	(23 289 934)
1992	1 956 354
1993	2 514 297
1994	2 903 718
1995	3 288 385
1996	3 673 053
1997	5 409 823
1998	5 408 969
1999	5 415 237
2000	5 415 237
2001	5 415 237
2002	5 415 237
2003	5 415 237
2004	5 415 237
2005	5 415 237
2006	5 415 237
2007	5 415 237
2008	5 415 237
2009	5 415 237
2010	5 415 237
2011	5 449 388
NPV	1 418 927
IRR	0.1059

In Table 7.23. a sensitivity analysis is performed. Evaluation should be supported by a sensitivity analysis. The aim of sensitivity analysis is (29);

- to redesign the project so that some of more significant risks are avoided.
- to identify areas where further study could usefully be done to make more accurate forecast of the variables.

Sensitivity analysis consists of calculating the effect of risk factors on NPV and IRR of the project. These risk factors must be quantifiable. The sensitivity analysis can be performed on the following factors.

- Changes in the demand.
- Operating performance (CUR).
- Variations in sales prices and input costs.
- Fluctuations in exchange rates (especially for export oriented or import raw-material dependent projects).
- Early technical obsolescence of main machinery, that is termination of economic life earlier than expected.

Table 7.23. illustrates a sensitivity analysis on operating performance. each column represents a different set of CURs.

YEARS	1992	1993	1994	1995	1996	1997-2011
1st Column	40%	45%	50%	55%	60%	90%
2nd Column	45%	50%	55%	60%	65%	95%
3rd Column	50%	55%	60%	65%	70%	100%
4th Column	55%	60%	65%	70%	75%	100%
5th Column	60%	65%	70%	75%	80%	100%
BEP	47%	52%	57%	62%	67%	97%

29. Hirst p.108

The last row of the performance table shows the operating performance which the project break-evens.

The results show the importance of CURs, during the implementation of the project operating performance should not go below the specified CURs.

TABLE 7.23.

SENSITIVITY ANALYSIS ON
CAPACITY UTILIZATION RATIOS

DISCOUNT RATE: 10%

GROSS CASH FLOW (1000 TL)

YEARS :	1	2	3	4	5
1990 :	(10 119 685)	(10 119 685)	(10 119 685)	(10 119 685)	(10 119 685)
1991 :	(23 289 934)	(23 289 934)	(23 289 934)	(23 289 934)	(23 289 934)
1992 :	1 259 900	1 608 127	1 956 354	2 304 581	3 413 642
1993 :	1 817 843	2 166 070	2 514 297	2 862 524	3 210 751
1994 :	2 207 264	2 555 491	2 903 718	3 328 028	3 600 173
1995 :	2 591 931	2 940 158	3 288 385	3 636 613	3 984 784
1996 :	2 976 598	3 244 654	3 673 053	4 021 280	4 369 507
1997 :	4 713 396	5 061 596	5 409 823	5 409 823	5 409 823
1998 :	4 712 515	5 060 742	5 408 969	5 408 969	5 408 969
1999 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2000 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2001 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2002 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2003 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2004 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2005 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2006 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2007 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2008 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2009 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2010 :	4 718 783	5 067 010	5 415 237	5 425 237	5 425 237
2011 :	4 752 934	5 449 388	5 449 388	5 449 388	5 449 388
NPV :	(3 481 313)	(1 029 561)	1 418 927	2 586 020	4 201 328
IRR :	0.0852	0.0957	0.1059	0.1108	0.1181

5. SUMMARY AND CONCLUSIONS

In the first part of this thesis study project and project appraisal concepts are reviewed, appraisal stages and project evaluators are introduced, and the relationship between project appraisal and national planning is analyzed. In the second part project appraisal process in the Development Bank of Turkey is introduced with critiques and some additional points. In the third part financial evaluation of a project is evaluated under the bank's methods. The forth part stands for a demostration of a financial analysis.

Projects can not be tought independent of the environment. Economical and political situations directly affect project evaluation as evaluative criteria change. Therefore project evaluation should be implemented by independent institutions which are away from political interests and capable of assessing economical situation objectively.

Project evaluation should be executed by an experienced team. All sectors in the economy have different kind of structure, evaluative criteria for each sector are different. The project evaluators should gain experience in certain sectors and become experts in these fields. Teams sould be formed by these experts who have broad knowledge and information about the technical subjects and market structure of the sector. The appraisal of qualified experts will be more reliable than formated studies.

A project appraisal should not end with a single number, experts

should write an detialed report under the light of their past experience in the subject of the project.

The evaluation in unstable economies requires concrete sensitivity analysis to identify risk factors. In fact in Turkey there exists uncertainities rather than measurable risks. therefore sensitivity analyses are hard. thus should be carried on for every important variable. The limited resources of the country should not be allocated to investments that are promising uncertain future.

In project appraisal studies, a special effort should be performed to evaluate the market for the project. The future of the project can be estimated only by good market research. Marketing force of a company, which will implement the project, should be evaluated before giving final decision.

The interest of public in projects which treathens the environment is rising. As a result politicians will try to prepare new regulations to satisfy voters. The project formulators in Turkey should be ready for these prospective regulations avoiding conflicts in future.

The post acceptance analysis of previous studies will be useful in the appraisal of new projects. After a project is accepted, the performance of this project should be followed up and compared with the estimated performance in appraisal report. The lessons should be used to correct appraisal procedures.

The success of a project depends on the abilities of the executors, therefore the managers of the project should be investigated in detail. Their experience in the sector and education should be found out.

Project evaluation is meaningless if the project formulators and evaluators are not capable of measuring the risks in the environment. The project appraisal formats should aim to measure the risks rather than trusting single numeric results. The limited resouces of the country should be allocated after the evaluation of highly rational project evaluators.

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APPENDIX

T. C.
BAŞBAKANLIK
DEVLET PLANLAMA TEŞKİLÂTI MÜSTEŞARLIĞI
TEŞVİK ve UYGULAMA BAŞKANLIĞI

YATIRIM TEŞVİK BELGESİ
VE
YATIRIM İNDİRİMİ BELGESİ

Bu belge, belirtilen esaslar çerçevesinde, Kalkınma Planı ve Yıllık Programlara uygun olarak yatırımların teşvik tedbirlerinden yararlandırılması amacıyla Teşvik ve Uygulama Başkanlığınca düzenlenmiştir.

Belge No: 20766 Tarih : 07 Mart 1988

YATIRIMI YAPACAK ŞİRKETİN İSMİ :

ARÇELİK AŞ
Çayırova/İSTANBUL

YATIRIMIN SEKTÖRÜ VE KONUSU :

İMALAT-ELEKTRİKLİ EV ALETLERİ ÜRETİMİ

YATIRIMIN CİNSİ : MODERNİZASYON

YATIRIMIN YERİ : İSTANBUL

YATIRIMCININ VERGİ DAİRESİ VE HESAP NO.SU :

Pendik V.D. 0739590019

ARÇELİK AŞ 'ın Başkanlığımıza yapmış olduğu 18.2.88 tarih ve 10388 sayılı müracaatı incelenerek, Bakanlar Kurulunun 14.10.86 tarih ve 86/11103 sayılı kararnamesine istinaden yatırımın teşvik tedbirlerinden yararlandırılması uygun görülmüştür. Yatırımı ile ilgili Gümrük Muafiyeti, Yatırım İndirimi, Döviz Tahsisi, Vergi - Resim - Harç İstisnası gibi teşvik tedbirleri, bu belgede öngörülen değerler ve şartlar esas olmak üzere Bakanlar Kurulu Kararnamesi ve Tebliğler gereği herhangi bir uygulama belgesi aranmaksızın ilgili kuruluşlar tarafından tatbik edilir.

DEVLET PLANLAMA TEŞKİLATI
MÜŞTEŞARLIĞI

Mustafa UCRUSKANER
Teşvik ve Uygulama Başkanı

Incentive Certificate

I — YATIRIMIN TUTARI
(Milyon TL.)

1. Sabit Yatırım	:		528
a) Arazi - Arsa	:	-	
b) Bina - İnşaat	:	-	
c) Makina - Teçhizat	:	528	
— İthal	:	328	
— Yerli	:	200	
2. Diğer Yatırım Harcamaları			142
3. Gümrük Vergi ve Resimleri	:		196
4. İşletme Sermayesi	:	-	-
TOPLAM YATIRIM			866

II — YATIRIMIN FİNANSMANI
(Milyon TL.)

1. Özkaynaklar (% 50)	:		335
a) Sermaye	:	-	
b) Şirket Fonları	:	335	
2. Yabancı Kaynakları (% 50)	:		335
a) Orta veya Uzun Vadeli İç Kredi		-	
b) Dış Kredi veya Döviz Kredisi		335	
c) İşletme Kredisi		-	
3. Gümrük Muafiyeti			196
TOPLAM FİNANSMAN:			866

III — YATIRIMIN KAPASİTESİ

	MEVCUT	İLAVE
Muhtelif Çamaşır Makinaları	: 560.000 adet	
Çamaşır kurutma Makinası	: 40.000 adet	-
Buleşik Makinası	: 40.000 adet	
Yayık Makinası	: 20.000 adet	

IV — YATIRIMI YAPACAK ŞİRKETİN SERMAYESİ

16.000.000.000.TL

XI – VİZELER VE DEĞİŞİKLİKLER

XII – KULLANILAN KREDİ ve DÖVİZ TAHSİSLERİ (Bankalar Tarafında İslenecektir.)

801/028.31.438 28.03.1988/1318 DM.29.000.-
parite 1.6840 US$. 17.220.90.-

801/028.31.459 31.03.1988/1409
FS 31.581.50 Parite:1.4000 US$ .22.558.-

V – İHRACAT TAAHHÜDÜ

VI – YATIRIM SÜRESİ

a) Başlama : 1.3.1988
b) Bitiş : 1.3.1989

VII – YATIRIMIN KURULU GÜCÜ (KVA) ve İSTİHDAM

6 MW. Mevcut İstihdam 796 kişi

VIII – YATIRIMA YAPILACAK DÖVİZ TAHSİSİ

İthal edilecek makina techizat için 280.000 $(1$=1170.-)

IX – YATIRIMIN FAYDALANACAĞI TEŞVİK TEDBİRLERİ

1.Yatırım İndirimi : % 30
2.Gümrük Muafiyeti : % 100
3.Teşvik Primi : % 20 yerli temin edilecek makina ve techizat için % 20 oranında teşvik primi ödenir.

X – ÖZEL ŞARTLAR